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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/588,583 | 06/25/2007 | Katsuaki Suzuki | YH0028-US1 | 8731 |
| 27788 7590 01/10/2011 Tyco Electronics Corporation 309 Constitution Drive Mail Stop R34/2A Menlo Park, CA 94025 | | | | |
| EXAMINER | | | | |
| FISHMAN, MARINA | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2833 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 01/10/2011 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/588,583

Applicant(s)

SUZUKI, KATSUAKI

Examiner

Marina Fishman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4 - 9, 15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4 - 9, 15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2010 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

General status

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/15/2011 has been entered. Claims 1, 4 – 9, 15 and 17 are pending in the case and are being examined.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4 – 9, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingo et al. [US 4,833,280] in view of Wang et al. [US 6,512,446].

Regarding Claims 1, 8, 9, 15 and 17, Bingo et al. [Figures 2 and 9] disclose a switch comprising:

- a conductive movable member [5];
- at least first and second terminals [9a, 9b, 9c, column 13, lines 26 +] and being switchable by mechanically moving the

movable member between a state in which the movable member contacts with the first and second terminals simultaneously and a state in which the movable member is apart from either one of the first and second terminals, wherein at least one of the first and second terminals comprises a conductive contact part [8a, 8b, 8c] for contacting with the movable member, a conductive connect part [respective vertical legs of 9a, 9b, 9c] for being electrically connected with an external element [9a, 9b, 9c].

Regarding Claims 1, 8, 9, 15 and 17, Bingo et al. disclose the instant claimed invention, except for a polymer PTC member located between the contact part and the connect part, the PTC member comprising a PTC element having a PTC material layer and a pair of conductive material layers located on opposed surfaces of the PTC material, the conductive material layers comprising metal foils being electrically connected with the contact part and connect part. Wang et al. [Figure 1] discloses a polymer PTC member [13] located between the contact part [14] and the connect part [15], the PTC member comprising PTC element [13] having PTC material layer and a pair of conductive material layers [12, 11] located on opposed surfaces of the PTC material, the conductive material layers comprising metal foils being electrically connected with the contact part [14] and connect part [15], respectively. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a polymer PTC member located between the contact part and the connect part in Bingo et

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al., as suggested by Wang et al., in order to provide over current protection by changing the resistance depending on the temperature of the device [Wang, Column 2, lines 22-28].

Regarding Claims 4 and 5, Bingo et al. disclose the terminals fixed to a substrate [6]. The modified device of Bingo and Wang et al. will have PTC parallel to the substrate. Alternatively the PTC material can be arranged perpendicular to the substrate, as a matter of design choice, in order to obtain desired dimensional characteristic of the device. Regarding Claim 7, Bingo et al. disclose an embodiment of Figure 9, which has three terminals, and satisfies the limitations of Claim 7. Regarding Claim 6, Bingo et al. and Wang et al. disclose the instant claimed invention except for PTC material layer retained between the contact part and the connect part with a spacer. The use of a spacer, absent any criticality, is considered to be nothing more than a choice of engineering skill, choice of design because 1) neither non-obvious nor unexpected results, i.e., results which are different in kind and not in degree from the results of the prior art, will be obtained as long the PTC material can be retained between the contact part and the connect part, 2) the retaining arrangement claimed by the Applicant and that disclosed by Bingo and Wang et al. are alternate types of retaining arrangements, which will perform the same function, if one is replaced with the other, and 3) the use of the spacer arrangement by Applicant is considered to be nothing more than the use of one of numerous and well known alternate types retaining arrangement, that a person having ordinary skill in the art would have been able to provide using routine experimentation in order to

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retain the PTC material. The motivation to add the spacer between the contact and the connect parts would be to reduce mechanical load on the PTC material.

Response to Arguments

4. Applicant's arguments filed 11/15/2010 have been fully considered but they are not persuasive.

The Applicant has argued, Bingo teaches that the fixed contact and the projecting terminal may be an integral element, a situation that clearly would be defeated if a PTC member were to be "located between the contact part and the connect part" as is stated in the present claims, as such an arrangement would separate the fixed contact and the projecting terminal. The Examiner respectfully disagrees. One of ordinary skill in the art would understand that the PTC material will have to be located between the upper and lower part of the terminal, and as such the terminal will be made in two parts with PTC material sandwiched between the two parts.

As to the argument that Bingo does not teach any need for handling high current conditions, and there would be no motivation to add a PTC element to Bingo's slide switch, the Examiner again respectfully disagrees. The chips do fail due to over current and heat generated by the over current, and as such providing PTC to control the current would prevent the chip from prematurely failing.

Conclusion

5. Any inquiry concerning this communication or earlier communications from

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the examiner should be directed to Marina Fishman whose telephone number is (571)272-1991. The examiner can normally be reached on 5:30 - 4:00 M-T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee S. Luebke can be reached on 571-272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marina Fishman/
Examiner, Art Unit 2833
January 3, 2011

/renee luebke/
Renee Luebke
Supervisory Patent Examiner
AU 2833